

WHAT IS CLAIMED IS:

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1. A module comprising:  
a semiconductor device;  
a phase adjustment circuit generating a  
second clock so that a phase adjustment signal  
10 output from the semiconductor device and a first  
clock have a predetermined phase relationship; and  
an output circuit that is provided in the  
semiconductor device and generates the phase  
adjustment signal from the second clock.

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2. The module as claimed in claim 1,  
20 wherein the semiconductor device comprises an output  
buffer from which data is output in synchronism with  
the second clock.

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3. A module comprising:  
semiconductor devices;  
a phase adjustment circuit generating a  
30 second clock so that a phase adjustment signal  
output from a first semiconductor device that is one  
of the semiconductor devices and a first clock have  
a predetermined phase relationship, the second clock  
being supplied to the semiconductor devices; and  
35 a wiring board on which the semiconductor  
devices and the phase adjustment circuit are mounted,  
the first semiconductor device including

an output circuit generating the phase adjustment signal from the second clock.

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4. The module as claimed in claim 3,  
wherein each of the semiconductor devices comprises  
an output buffer from which data is output in  
10 synchronism with the second clock.

15 5. The module as claimed in claim 3,  
wherein the module comprises first data lines over  
which data output from the semiconductor devices are  
transferred, and a second data line over which the  
phase adjustment signal output from the first  
20 semiconductor device is transferred,  
the first and second data lines being  
provided on the wiring board.

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6. The module as claimed in claim 4,  
wherein the module comprises first data lines over  
which data output from the semiconductor devices are  
30 transferred, and a second data line over which the  
phase adjustment signal output from the first  
semiconductor device is transferred,  
the first and second data lines being  
provided on the wiring board.

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7. The module as claimed in claim 5,  
wherein the first and second data lines are arranged  
on an identical side of the wiring board.

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8. The module as claimed in claim 6,  
wherein the first and second data lines are arranged  
10 on an identical side of the wiring board.

15 9. The module as claimed in claim 5,  
wherein the first and second data lines are arranged  
on opposite sides of the wiring board so that the  
semiconductor devices are sandwiched between the  
first and second data lines.

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25 10. The module as claimed in claim 6,  
wherein the first and second data lines are arranged  
on opposite sides of the wiring board so that the  
semiconductor devices are sandwiched between the  
first and second data lines.

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11. The module as claimed in claim 5,  
wherein the first and second data lines have a  
35 substantially identical delay amount.

12. The module as claimed in claim 6,  
wherein the first and second data lines have a  
substantially identical delay amount.

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13. The module as claimed in claim 5,  
wherein the first and second data lines have a  
10 length that allows their delay amounts to be  
negligible.

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14. The module as claimed in claim 6,  
wherein the first and second data lines have a  
length that allows their delay amounts to be  
negligible.

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15. The module as claimed in claim 3,  
25 further comprising a terminal that is provided on  
the wiring board and is used to output the phase  
adjustment signal to an outside of the module.

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16. The module as claimed in claim 3,  
wherein the first semiconductor device generates the  
phase adjustment signal in accordance with a  
35 predetermined signal given from an outside of the  
first semiconductor device.

17. The module as claimed in claim 3,  
wherein:

the semiconductor devices including the  
first semiconductor device have an identical circuit  
5 configuration; and

the first semiconductor device has an  
output circuit that receives an external instruction  
that instructs the first semiconductor device to  
generate the phase adjustment signal.  
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18. The module as claimed in claim 3,  
15 wherein the first clock is supplied from an outside  
of the module.

20 19. The module as claimed in claim 3,  
further comprising a circuit generating the first  
clock from an external clock.

25 20. The module as claimed in claim 3,  
wherein each of the semiconductor devices comprises  
30 a programmable delay circuit that delays the second  
clock.

35 21. The module as claimed in claim 3,  
wherein the semiconductor devices comprise  
semiconductor memory devices.

22. The module as claimed in claim 3,  
wherein the phase adjustment circuit generates the  
second clock from dummy output data output by the  
first semiconductor device.

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23. The module as claimed in claim 3,  
10 further comprising a second phase adjustment circuit  
generating a third clock so that the third clock and  
the first clock have a predetermined phase  
relationship, the third clock being supplied to the  
semiconductor devices.

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24. The module as claimed in claim 23,  
20 wherein the first clock corresponds to the third  
clock.

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25. A system comprising:  
modules;  
a wiring board on which the modules are  
mounted; and  
30 a dummy output load line serving as loads  
of dummy output data output from the modules.

26. The system as claimed in claim 25,  
35 wherein the dummy output load line is provided in  
common to the modules.

27. The system as claimed in claim 25,  
wherein the dummy output load line comprises parts  
respectively provided to the modules.

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28. The system as claimed in claim 25,  
wherein the modules comprises a module including:

10 semiconductor devices;  
a phase adjustment circuit generating a  
second clock so that a phase adjustment signal  
output from a first semiconductor device that is one  
of the semiconductor devices and a first clock have  
15 a predetermined phase relationship, the second clock  
being supplied to the semiconductor devices; and  
a wiring board on which the semiconductor  
devices and the phase adjustment circuit are mounted,  
the first semiconductor device including  
20 an output circuit generating the phase adjustment  
signal from the second clock.

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29. A semiconductor device comprising:  
a first buffer receiving a first external  
clock and generating a first internal clock  
therefrom;

30 a second buffer receiving a second  
external clock and generating a second internal  
clock therefrom;

an input buffer fetching input data in  
synchronism with the first internal clock;

35 an output buffer from which data is output  
in synchronism with the second internal clock; and  
an output circuit outputting dummy output

data in synchronism with the second internal clock.

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30. The semiconductor device as claimed  
in claim 29, wherein the output circuit generates  
the dummy output data from the second internal clock  
in accordance with an instruction to output the  
10 dummy output data supplied from an outside of the  
semiconductor device.

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31. The semiconductor device as claimed  
in claim 29, wherein the output circuit comprises a  
programmable delay circuit that delays the second  
internal clock.

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32. The semiconductor device as claimed  
25 in claim 30, wherein the output circuit comprises a  
programmable delay circuit that delays the second  
internal clock.

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33. The semiconductor device as claimed  
in claim 29, wherein the semiconductor device is a  
semiconductor memory device.

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